

IN THE CLAIMS

1- 41 (Canceled)

42. (Currently amended) An apparatus for treating tissue or organs, said apparatus comprising:

a plurality of electrodes arranged in an electrode applicator adapted for placement within a restricted region of the tissue or organ,

a high voltage generator arranged to generate and deliver one or more high voltage pulses to said plurality of electrodes,

an impedance measuring means unit arranged between the plurality of electrodes for measuring to measure impedance within said restricted region, before, during and after application of said one or more high voltage pulses, at a plurality of frequencies, and

a registration and conversion means device, arranged between said high voltage generator and said impedance measuring means for receiving unit to receive signals from the impedance measuring means unit and emitting signals to the high voltage generator to control the pulses produced thereby based on the impedance measured in said restricted region.

43. (Previously Presented) The apparatus according to claim 42, wherein said high voltage generator generates the high voltage pulses at a value high enough to produce cell electroporation.

44. (Currently amended) The apparatus according to claim 42, wherein the registration and conversion means device correlates impedance measurements with a degree of

electroporation of the cells in the tissue or organs and emits signals to the high voltage generator to adjust or terminate the pulses when a desired treatment effect is obtained.

45. (Currently amended) The apparatus according to claim 44, wherein the registration and conversion means device emits signals to the high voltage generator during the pulses to adjust the pulses so that a predetermined field strength in the tissue or organs is obtained.

46. (Previously Presented) The apparatus according to claim 44, wherein said one or more high voltage pulses has a pulse length of approximately 0.1 to 200 ms.

47. (Currently amended) The apparatus according to claim 46, wherein the impedance measuring means unit measures at frequencies within the range of 10 Hz to 10 MHz.

48. (Currently Amended) The apparatus according to claim 47, wherein the impedance measuring means unit measures at frequencies within the range of 40 Hz to 2 MHz.

49. (Currently Amended) The apparatus according to claim 48, wherein the impedance measuring means unit measures at frequencies within the range of 10 Hz-200kHz.

50. (Currently Amended) The apparatus according to claim 49, wherein the impedance measuring means unit measures at frequencies within the range of 40 Hz to 100 kHz.

51. (Currently Amended) The apparatus according to claim 50, wherein the impedance measuring means unit measures at frequencies within the range of 100 Hz to 10 kHz.

52. (Previously Presented) The apparatus according to claim 51, wherein said one or more

high voltage pulses is set to a repetition frequency of approximately 0.1 to 10000 cycles per second.

53. (Previously Presented) The apparatus according to claim 52, wherein said one or more pulses has an amplitude of approximately 50 to 6000 V.

54. (Previously Presented) The apparatus according to claim 53, wherein said one or more pulses is selected from the group consisting of mono-polar square wave pulses, mono-polar exponential decaying pulses, bipolar square wave pulses, bipolar exponential decaying pulses and sinusoidal bipolar pulse trains.

55. (Currently Amended) The apparatus according to claim 54, further comprising sensors arranged to detect electric fields formed by the electrodes connected to the registration and conversion means device to measure magnitude of the electric field.

56. (Currently Amended) The apparatus according to claim 55, further comprising sensors arranged to detect the distance between the electrodes connected to said registration and converter means device which adjust the voltage between said electrodes based on the detected distance between the electrodes.

57. (Currently Amended) The apparatus according to claim 56, wherein the registration and conversion means device is a computer.

58. (Currently Amended) The apparatus according to claim 57, wherein the registration and conversion means device is a microprocessor.

59. (Currently Amended) The apparatus according to claim 58, wherein said electrodes are respectively connected to one or both of said voltage generator and said impedance measuring means unit.

60. (Previously Presented) The apparatus according to claim 59, further comprising means for supplying at least one therapeutic substance, genetic material and ionizing radiation to said tissue or organ.

61. (Previously Presented) The apparatus according to claim 60, wherein said electrodes are in the form of needles or stilettos.

62. (Previously Presented) The apparatus according to claim 61, wherein said electrodes are surrounded by an electrically insulating layer.

63. (Previously Presented) The apparatus according to claim 62, wherein said electrode applicator includes a fixture arranged to position the electrodes.

64. (Previously Presented) The apparatus according to claim 63, wherein said fixture is provided with a number of holes arranged to place the electrodes in a desired pattern.

65. (Previously Presented) A method in which the apparatus according claim 42, is used in which the treatment of tissue or organ is performed until the impedance decreases.

66. (Previously Presented) A method in which the apparatus according to claim 42, is used in which the treatment of tissue or organ is performed until the impedance increases.

67. (Previously Presented) The method according to claim 65, wherein 1-2000 pulses are used.

68. (Previously Presented) The method according to claim 66, wherein 1-2000 pulses are used.

69. (Previously Presented) The method of claim 65, for the treatment of tumors.

70. (Currently Amended) An apparatus for treating tissue or organs, said apparatus comprising:

a plurality of electrodes arranged for placement within a restricted region of the tissue or organ to be treated,

a high voltage generator arranged to generate and deliver one or more high voltage pulses to said plurality of electrodes,

an impedance measuring means unit arranged between the plurality of electrodes for measuring to measure impedance of the restricted region, before, during and after application of said one or more high voltage pulses, at a plurality of frequencies, and

a registration and conversion means device, communicating with said high voltage generator and said impedance measuring means for receiving, storing unit to receive, store, and comparing compare impedance measurements from the impedance measuring means unit and for controlling to control the high voltage generator such that the high voltage pulses to be delivered to said plurality of electrodes produces a constant electric field within the restricted region.

71. (Previously Presented) A method for implementation in an apparatus for treating tissue

or organs having a plurality of electrodes adapted for placement within a restricted region of the tissue or organ, a high voltage generator arranged to generate one or more high voltage pulses to said plurality of electrodes, an impedance measuring unit arranged between the plurality of electrodes to measure impedance before, during and after application of said one or more high voltage pulses at a plurality of frequencies, and a registration and conversion device communicating with said impedance measuring unit and said high voltage generator to receive impedance measurements measured by the impedance measuring unit and to control said high voltage generator, said method comprising the steps of:

receiving an initial impedance measurement measured by the impedance measuring unit before the one or more high voltage pulses to be generated by the high voltage generator,

storing the impedance measurements received in the step of receiving an initial impedance measurement,

emitting an initial control signal to the high voltage generator to generate a high voltage pulse based on the impedance measurement received in the step of receiving an initial impedance measurement,

receiving an intermediate impedance measurement measured by the impedance measuring unit during the one or more high voltage pulses to be generated by the high voltage generator,

storing the impedance measurement received in the step of receiving an intermediate impedance measurement,

obtaining an assessment by assessing effects of the one or more high voltage pulses generated by the high voltage generator by comparing the initial impedance measurement stored in the step of storing the initial impedance measurement and the intermediate impedance measurement stored in the step of storing the intermediate impedance measurement, and

emitting a signal to the high voltage generator to adjust or terminate the high voltage pulses base on the assessment obtained in the step of obtaining an assessment.

72. (Previously Presented) The method according to claim 71, wherein the impedance is measured at a plurality of frequencies and the application of high voltage pulses is terminated after values of impedance at said plurality of frequencies reaches a constant value.

73. (Previously Presented) The method according to claim 72, wherein a medical treatment substance is introduced into the body prior to application of high voltage pulses or after the registration and conversion device has terminated the application of high voltage pulses.

74. (Cancelled)

75. (Previously Presented) The method according to claim 71, wherein the high voltage is applied for a short period of about 32 pulses.

76. (Currently Amended) The apparatus according to claim 42, wherein said registration and conversion means device compares impedance measurements from the impedance measuring unit means control the high voltage generator such that the high voltage pulses to be delivered to said plurality of electrodes produce a constant electric field within the restricted region.

77. (Currently Amended) A method in which the apparatus of claim 42 is used and comprises the steps of:

receiving an initial impedance measurement measured by the

impedance measuring means unit before the one or more high voltage pulses to be generated by the high voltage generator,

storing the impedance measurements received in the step of receiving an initial impedance measurement,

emitting an initial control signal to the high voltage generator to generate a high voltage pulse based on the impedance measurement received in the step of receiving an initial impedance measurement,

receiving an intermediate impedance measurement measured by the impedance measuring means unit during the one or more high voltage pulses to be generated by the high voltage generator,

storing the impedance measurement received in the step of receiving an intermediate impedance measurement,

obtaining an assessment by assessing effects of the one or more high voltage pulses generated by the high voltage generator by comparing the initial impedance measurement stored in the step of storing the initial impedance measurement and the intermediate impedance measurement stored in the step of storing the intermediate impedance measurement, and

emitting a signal to the high voltage generator to adjust or terminate the high voltage pulses based ~~base~~ on the assessment obtained in the step of obtaining an assessment.

78. (Original) The method according to claim 77, wherein the impedance is measured at a plurality of frequencies and the application of high voltage pulses is terminated after values of impedance at said plurality of frequencies reaches a constant value.

79. (Original) The method according to claim 78, wherein a medical treatment substance is

introduced into the body prior to application of high voltage pulses or after the registration and conversion means device has terminated the application of high voltage pulses.

80. (Cancelled)

81. (Original) The method according to claim 77, wherein the high voltage is applied for a short period of about 32 pulses.

82. (New) The apparatus according to claim 42, wherein said impedance measuring means comprises sensors for application to the tissue or organ within said restricted region.

83. (New) The apparatus according to claim 42, wherein the pulses produced by the high voltage generator are controlled by the registration and conversion means to produce a substantially constant pre-determined electric field in said restricted region of the tissue or organ.